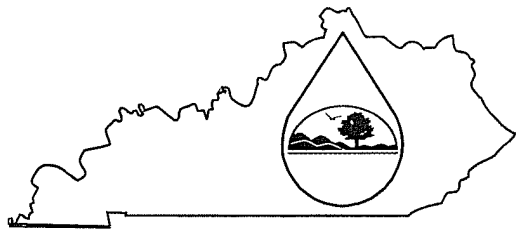


KPDES FORM HQAA



Kentucky Pollutant Discharge Elimination System (KPDES)

High Quality Water Alternative Analysis

The Antidegradation Implementation Procedures outlined in 401 KAR 5:030, Section 1(3)(b)5 allows an applicant who does not accept the effluent limitations required by subparagraphs 2 and 3 of 5:030, Section 1(2)(b) to demonstrate to the satisfaction of the Environmental and Public Protection Cabinet that no technologically or economically feasible alternatives exist and that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the water is located. The approval of a POTW's regional facility plan pursuant to 401 KRS 5:006 shall demonstrate compliance with the alternatives analysis and socioeconomic demonstration for a regional facility. This demonstration shall also include this completed form and copies of any engineering reports, economic feasibility studies, or other supporting documentation

I. Permit Information

Facility Name:	Armstrong Coal Company, Inc.	KPDES NO.:	
Address:	407 Brown Road	County:	Ohio
City, State, Zip Code:	Madisonville, Kentucky 42431	Receiving Water Name:	Render Creek

II. Alternatives Analysis

1. Has discharge to other treatment works been investigated? Yes ☒ No ☐
(If yes, then indicate which treatment works were considered and the reasons why that discharge to these works is not feasible.)
See Attachment II.1

2. Have other discharge locations been evaluated? Yes ☒ No ☐
(If yes, then indicate what other discharge locations have been evaluated and the reasons why these locations are not feasible.)
See Attachment II.2

Attachment II.1

The proposed permit operation is a refuse disposal operation. The only water generated at this facility is stormwater runoff that is controlled by 1 sediment control structure as required by the DMRE permit. It is estimated that construction of the sediment control structure would cost \$20,000.00. Runoff from the permit area controlled by the basin would be discharged to the nearest stream. The nearest municipal sewage treatment facility is approximately 2.7 miles northwest of the operation at Centertown, KY. This site would not be practical since the permit area and Centertown are separated by Armstrong Coal Company, Inc.'s Midway Mine. The next nearest site would be Beaver Dam, KY. This facility is approximately 3.6 miles to the east of the permit area. Because of terrain, routing of water to this plant would require approximately 20,000 feet of carrier line, an extensive network of pump and lift stations, and obtaining numerous right-of-ways and easements. Conservatively estimating a line @ \$20/foot and a three lift stations at \$300,000 ignoring other stated requirements, the minimum cost of this option would exceed \$1,300,000 dollars. Based on an average rain fall of 45 inches per year, the projected possible discharge from the watershed associated with this project could be approximately 95 million gallons water per year. Another option would be to transport the stormwater runoff to the Centertown, KY treatment works by tanker truck. This option is also not practical, since it would require more than 10,500 truck loads based on a 9,000 gallon tanker truck. This would require four trucks costing approximately \$100,000 dollars each. The trucks would have to average 200 trips a week for 50 weeks a year. In addition to the cost of the trucks there would also be driver salaries, maintenance cost, fuel, and various taxes in addition to having to pay the facility for water treatment.

Attachment II.2

The nearest unnamed tributary of Render Creek will be used as a discharge location due to its proximity to the permit area. Render Creek was considered as a discharge location but would not be practical due to the fact that the stream is located 5,600 feet to the east of the discharge area. This would require pumping runoff from the permit area uphill from the permit area's lowest point. The routing of runoff from the permit area to the tributary would require 5,600 feet of line at an estimated cost of \$112,000.00 and four water pumps at \$36,000.00. Pumping stormwater runoff to Render Creek would serve no practical purpose since the unnamed tributary would eventually drain to Render Creek. Bens Lick was considered as a discharge location but would be unfeasible due to the fact that it is located on the north side of a watershed divide. This would require pumping runoff from the permit area uphill approximately 50 feet from the permit area's lowest point. The routing of runoff from the permit area to the tributary would require 5,000 feet of line at an estimated cost of \$100,000.00 and three water pumps at \$27,000.00. There is a second unnamed tributary of Render Creek located to the south of the permit area. This tributary would not be practical since the tributary is located within a previously surface mine area with numerous spoil piles and pit impoundments. It would also require constructing a water line across an existing railroad and county road. The sediment control structure will be constructed as required for the DMRE permit. Since the basin is required, no other construction cost would occur with the proposed discharge location.

II. Alternatives Analysis - continued

3. Has water reuse or recycle been investigated as an alternative to discharge?
(If yes, then provide the reasons why it is not a feasible alternative)

Yes



No



The drainage area for this project is 77 acres: Pond #MW-09

Using water from this project for on site dust suppression was proposed. Watering of reclaimed areas is not proposed due to the size of the area and the cost of constructing an irrigation system. The slope of the area ranges from 0.5% to 25%. The reclaimed area will have a slope greater than 6% which makes irrigation impractical due to the rate of absorption. The permit area consists of topsoil piles, sediment ponds, refuse impoundment, and roads. The remaining permit area will be reclaimed and revegetated after the operation is completed. Current reclamation practices have demonstrated that irrigation of reclaimed areas is not necessary when seeding and/or mulching are performed at the proper time. An irrigation system would require a water wheel, a minimum of 3000 feet of pipe, 2 water pumps, and miscellaneous spray heads, fittings, couplings, etc. at an estimated cost of \$125,000.00

It is proposed that the sediment control structure be used to control runoff from the 77 acre drainage area. The basin will collect surface water and sediment runoff from the old spoil piles in the watershed during the rainy periods of the year. This will help remove sediment from the runoff so as to reduce any sediment discharged into nearby streams. The sediment control structure is not likely to discharge during the dry periods of the year and will act as a water source for area wildlife. This project will not require the withdrawal of water from any nearby streams.

4. Have alternative process or treatment options been evaluated?
(If yes, then indicate what process or treatment options have been evaluated and provide the reasons they were not feasible.)

Yes



No



The use of a wastewater treatment system was considered but would not be practical. Based on an average yearly rainfall of 45 inches on 77 acres at 75% runoff a treatment facility would have to treat approximately 71.25 million gallons of runoff annually. Cost of treating the runoff is estimated at \$0.01 per gallon or \$712,500.00 per year. Construction and removal of such a facility is estimated at over \$250,000.00.

As an alternative treatment option, sand filtration was evaluated but deemed not applicable. Sand filtration is used primarily as a pre-treatment to remove microbial contaminants not particulate matter in storm run-off in smaller, urban drainage areas. The higher sediment involved in a storm event could clog the filtration unit rendering it ineffective. Sand filters do not control storm water flow and do not prevent downstream bank and channel erosion as proposed sediment structures are designed to do. Also The operational efficiency of these sand filtration units has not been evaluated in colder climates and freezing temperatures.

Using silt fences and straw bales for sediment control was considered as per BMP's but were determined to be inadequate due to the drainage area size. The use of silt fences and straw bales may be used as a temporary measure during sediment control structure construction.

The sediment control structure will provide a controlled release of runoff during the rainy season and during storms. The controlled release will help prevent erosion and control sediment that could run into streams. During the dry season the structure would not discharge and could provide a source of water for wildlife.

II. Alternatives Analysis - continued

5. Have on-site or subsurface disposal options been evaluated?

Yes

No

☒☐

(If yes, then indicate the reasons they were not feasible.)

See Attachment II.5

6. Have any other alternatives to lowering water quality been evaluated?

Yes

No

☒☐

(If yes, then describe those alternatives evaluated and provide the reasons why these alternatives were not feasible.)

Choosing not to permit the area as an alternative to lowering water quality was evaluated but the loss of 120 jobs on the refuse disposal operation and on the adjacent mining operation and the ensuring \$5.2 million dollars in collective annual salaries.

The disposal operation will dispose of coal refuse from the adjacent coal mining operation's coal preparation plant. Without this disposal area and mining operation the county would lose approximately 7.4 million in severance tax dollars over the life of the mining operation and 25 thousand dollars in property tax resulting in negative economic consequences.

Based on a yearly runoff of 71.25 million gallons it is estimated that water treatment to remove any contaminate would cost \$712,500.00 per year (71.25 million gallons @ \$0.01 per gallon). This method of treatment would be uneconomical. The most economical option would be the proposed sediment control structure proposed in the DMRE permit. The basin is required to be constructed and will meet KPDES effluent limitations. If for unseen reasons the basins don't meet effluent limitations, the basin will be treated to meet the effluent requirements.

Attachment II.5

The installation of an on site sanitary septic system, i.e., septic tank was evaluated but it is not an applicable option. Building a system large enough to handle the volume of water would be impractical. It is estimated that a septic system capable of handling a 25 year, 24 hour storm event would cost over \$500,000.00. Such a system would require multiple septic tanks, holding tanks, distribution boxes, lift stations, pumps, filter fabric, drainage pipes, gravel, an area of sufficient size and soil type to act as a drain field, and construction cost. Septic systems are designed to degrade organic and biodegradable material over time by anaerobic digestion. While the source of the water would most likely contain some organic material and some needed bacteria, it would be inadequate to decompose the sediment and would work essentially the same as a sediment structure. Constructing an on-site storm water treatment facility was considered. The volume of discharge and the lift required makes this an unfeasible option. Calculating a peak flow from a 50 year, 24 hour rainfall event of approximately 17,500 gpm would make the cost of this disposal option unfeasible at an estimated cost in excess of a \$500,000.00. The possibility of using old mined out underground works was not considered as a disposal option since there could be the possibility of ground water contamination. The possibility of using old mined out underground works was not considered as a disposal option because of the possibility of ground water contamination. Using water from this project was proposed to control dust from the haul roads. Watering of reclaimed area is not proposed since the majority of the project will consist of permanent roads in addition to the cost of constructing an irrigation system. The majority of reclaimed area will have a slope greater than 6% which makes irrigation impractical due to the rate of absorption. The proposed impoundment would not have sufficient storage capacity to provide enough water to operate an irrigation system and would require withdrawing water from nearby streams. Current reclamation practices have demonstrated that irrigation of reclaimed areas is not necessary when seeding and/or mulching are performed at the proper time.

III. Socioeconomic Demonstration

1. State the positive and beneficial effects of this facility on the existing environment or a public health problem.

The sediment basin will control area stormwater runoff and control sediment from existing pre-law surface mining operations. The sediment basin will catch and hold sediment from previously mined areas and keep it from entering nearby streams. The reclaimed area and permanent basin will provide a more friendly habitat for the local wildlife.

2. Describe this facility's effect on the employment of the area

This disposal operation area is required to dispose of refuse from the existing coal prep plant adjacent to the area and will employ a combined 120 employees. Without this facility, the surface mine would not be able to continue production resulting in the loss of 120 jobs and more jobs not being created on adjacent mines. Without the disposal operation and other mining operations in the county, Ohio County would have a much higher unemployment rate than the state average.

See Attachment III.2

3. Describe how this facility will increase or avoid the decrease of area employment.

See Attachment III.3

4. Describe the industrial or commercial benefits to the community, including the creation of jobs, the raising of additional revenues, the creation of new or additional tax bases.

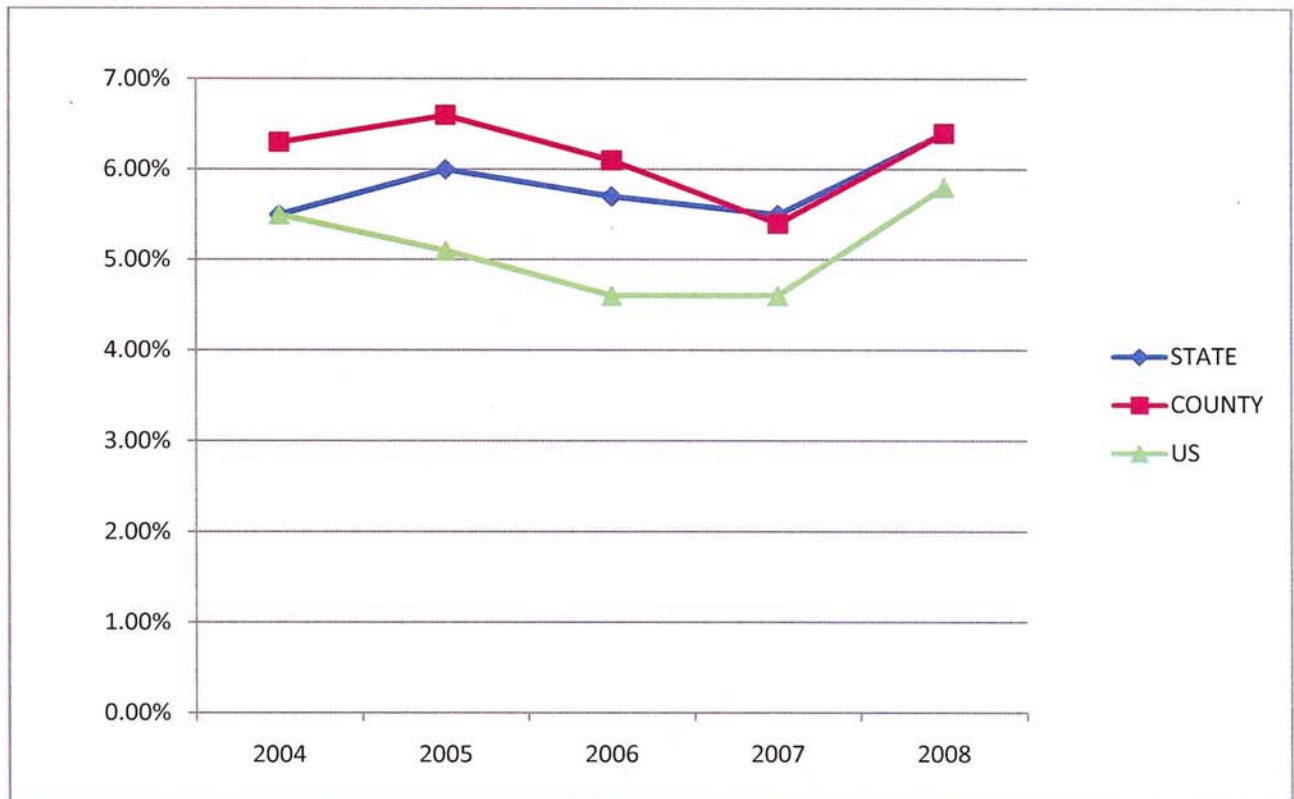
See Attachment III.4

5. Describe any other economic or social benefits to the community.

From 2003 thru 2007, data shows that the average Ohio County resident earned approximately \$6,259.00 less than the average Kentucky resident. During the same time period, the average Ohio County miner earned \$10,987.00/year more than the average Kentucky worker. The jobs created by this project will pay some of the highest wages in Ohio County. In 2007, the average miner in Ohio County grossed approximately \$41,500/year.

See Attachment III.5

UNEMPLOYMENT RATE



YEAR	STATE UNEMPLOYMENT RATE	COUNTY UNEMPLOYMENT RATE	US UNEMPLOYMENT RATE
2004	5.50%	6.30%	5.50%
2005	6.00%	6.60%	5.10%
2006	5.70%	6.10%	4.60%
2007	5.50%	5.40%	4.60%
2008	6.40%	6.40%	5.80%

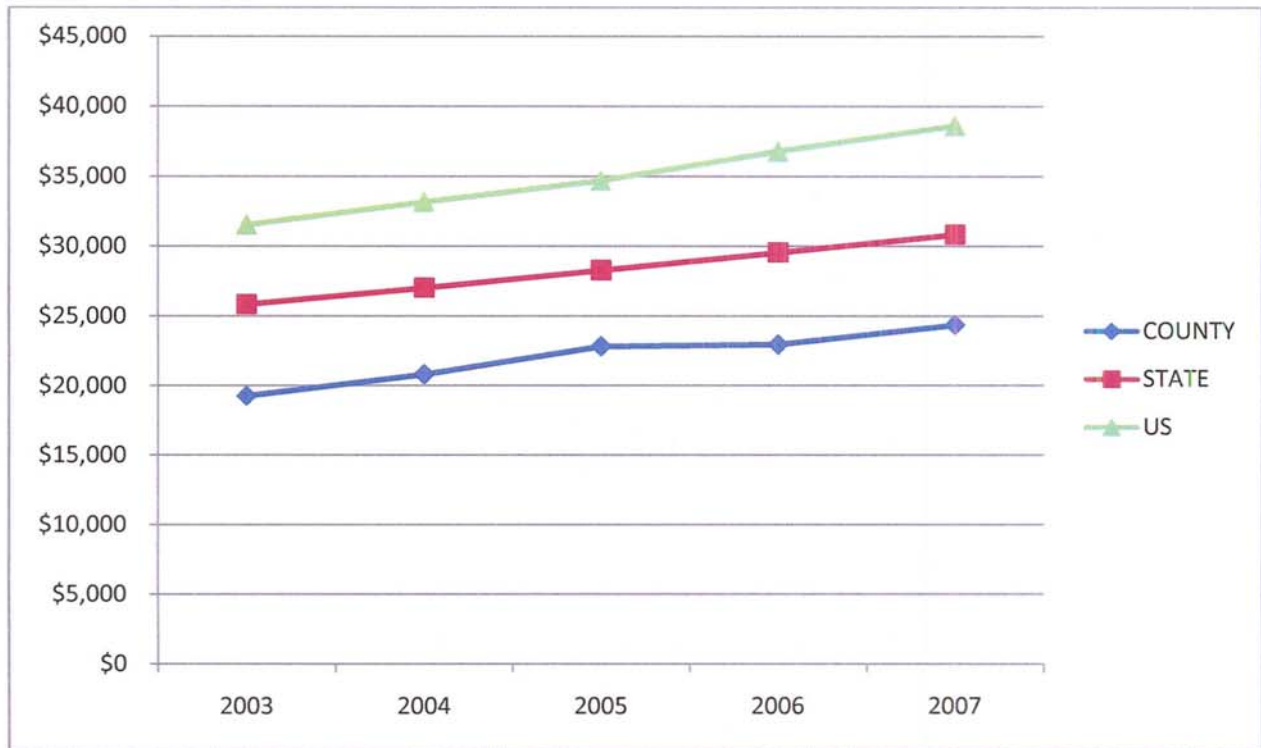
Attachment III.3

This refuse disposal operation and adjacent mining operation will provide employment in Ohio County for 120 jobs on the operations for a period of 10 years. This operation will dispose of refuse from the coal prep plant on the adjacent area surface mine operation presently employs approximately 120 people and will continue to provide employment in the future. Failure to permit this operation would also result in additional unemployment by other businesses that service the operation such as mine equipment and parts suppliers, fuel suppliers, office and maintenance suppliers, transportation, engineering consultants, etc. In 2008, the unemployment rate for Ohio County was 6.4%, with a labor force of 12,634 workers. The creation of 120 jobs would result in an additional 0.9% of the workforce being employed. Without this disposal area the adjacent mining operation could not continue.

Attachment III.4

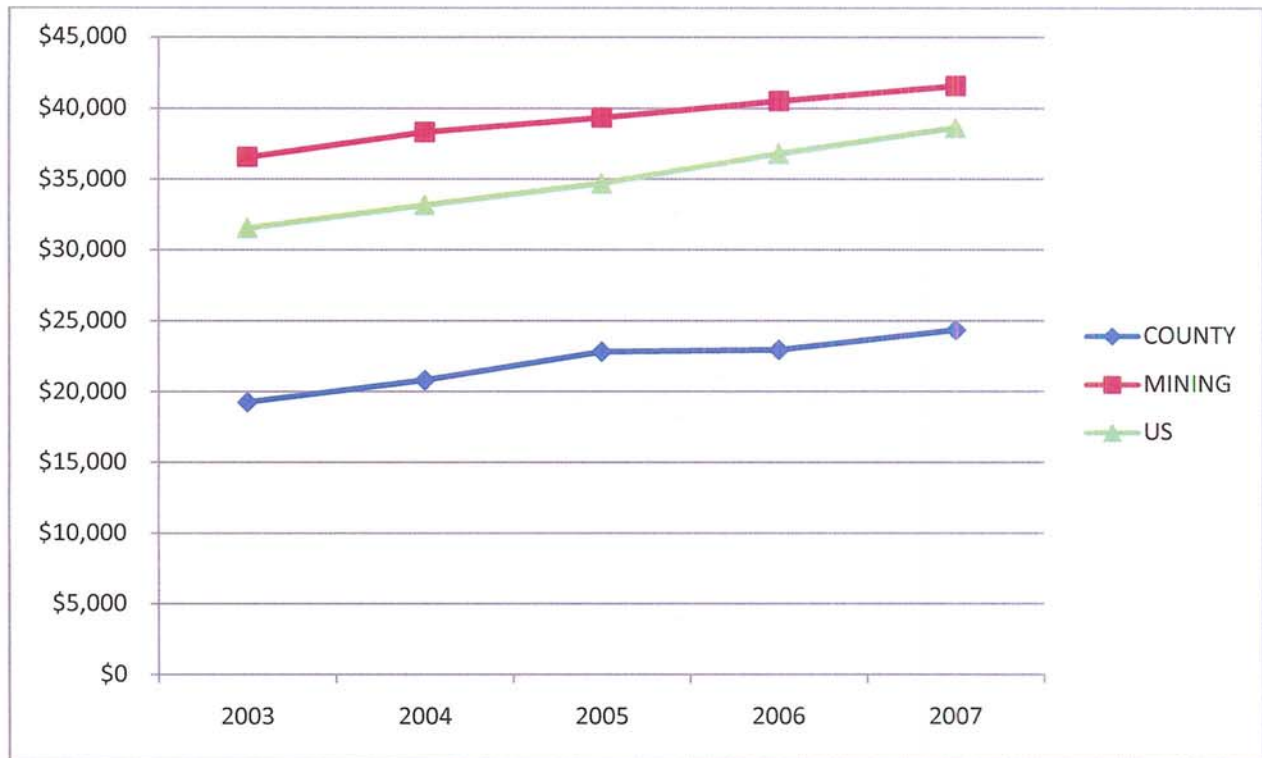
This disposal operation and the adjacent mining operation will provide approximately 120 jobs and will also provide indirect employment opportunities in mining related industries including equipment sales and parts, engineering services, transportation, food services, fuel sales, and office and maintenance suppliers. The mining industry contributes directly to Ohio County's economy through real, personal and severance taxes. This project will contribute to this tax base. Based on an estimated coal processing production of 1.2 million tons per year from the adjacent mining operation at \$40.00 per ton, the mining operation would contribute approximately \$864,000.00 per year in severance tax to the county. (1,200,000 tons x \$40.00 x 4.5% x 40% = \$864,000.00) These monies are used for local education, health services, judicial services and infrastructure projects.

WAGE RATE COMPARISON



YEAR	COUNTY ANNUAL INCOME	STATE ANNUAL INCOME	US ANNUAL INCOME
2003	\$19,272	\$25,840	\$31,530
2004	\$20,816	\$27,020	\$33,157
2005	\$22,816	\$28,272	\$34,690
2006	\$22,945	\$29,542	\$36,794
2007	\$24,353	\$30,824	\$38,615

WAGE RATE COMPARISON



YEAR	COUNTY AVERAGE INCOME	AVERAGE COUNTY MINING INCOME	US AVERAGE INCOME
2003	\$19,272	\$36,596	\$31,530
2004	\$20,816	\$38,341	\$33,157
2005	\$22,816	\$39,360	\$34,690
2006	\$22,945	\$40,541	\$36,794
2007	\$24,353	\$41,595	\$38,615

III. Socioeconomic Demonstration - continued

- | | <u>Yes</u> | <u>No</u> |
|--|-------------------------------------|-------------------------------------|
| 6. Will this project be likely to change median household income in the county? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 7. Will this project likely change the market value of taxable property in the county? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 8. Will this project increase or decrease revenues in the county? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9. Will any public buildings be affected by this system? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

10. How many households will be impacted by this project? **480**

11. How will those households be impacted?

The average weekly earnings for a mining employee in Ohio County in 2007 was approximately \$800.00. These earnings accounted for 0.2% of the total county wages for that time period. Based on this data, these households will earn \$4,992,000.00 annually. The average weekly earning for the approximate 360 workers affected indirectly by the operation is approximately \$468.33. Based on this data, these households will earn \$8,767,080.00 annually. This sustained income will maintain the current status for the households and allow the households to maintain their current standard of living.

- | | <u>Yes</u> | <u>No</u> |
|--|--------------------------|-------------------------------------|
| 12. Does this project replace any other methods of sewage treatment to existing facilities?
(if so describe how) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Residences in the surrounding permit area either use septic tank systems or other means of waste disposal. There is no other treatment taking place within the project boundary.

- | | <u>Yes</u> | <u>No</u> |
|--|-------------------------------------|--------------------------|
| 13. Does this project treat any existing sources of pollution more effectively?
(If so describe how.) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

The disposal operation will incorporate a sediment control structure (basin) which will control previously mined areas and woodlands that did not previously have sediment control from stormwater runoff.

III. Socioeconomic Demonstration - continued

Yes No

14. Does this project eliminate any other sources of discharge or pollutants?



(If so describe how.)

The loading operation will incorporate a sediment control structure (basin) which will control previously mined areas and woodlands that did not previously have sediment control from stormwater runoff. After the operation is completed the permit area will be reclaimed. The sediment control structure is proposed as permanent and will continue to provide sediment control after reclamation is completed.


15. How will the increase in production levels positively affect the socioeconomic condition of the area?

This facility will support adjacent coal mining operations by disposing of refuse material from the coal prep plant which will allow 1,200,000 tons of coal per year to be mined for the next 10 years that may not be recovered or made available to the market and resulting in the employment of 120 people. It will create new employment opportunities, aid in development and maintenance of indirect jobs and will increase the amount of money the area receives in personal and severance taxes.

16. How will the increase in operational efficiency positively affect the socioeconomic condition of the area?

This disposal and mining operation will have 120 employees and mine and process 1,200,000 tons of coal per year generating support jobs in the community, increasing property tax base and coal severance tax income to the state and county.

IV Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and Title:	David R. Cobb, Secretary	Telephone No.:	(270) 821 - 0987
Signature:		Date:	7-24-09